

## **REMARKS**

Applicant's counsel thanks the Examiner for the careful consideration given the application.

### **Claims**

Claim 1 has been amended by adding the phrase --the vulcanized rubber being present in a reactor--. Claims 15 and 23 have been amended by adding the phrase --the tire being present in a reactor--. Support for these amendments can be found on page 7, line 5 of the specification as originally filed.

Claims 1, 15 and 23 have been amended by adding the phrase --purging air from the reactor--. Support for this amendment can be found on page 8, lines 7-12 of the specification as originally filed.

### **Claim rejections-Anticipation and Obviousness**

In the Office Action of October 4, 2005, the Examiner rejected original claims 1-3 and 6-23 under 35 U.S.C. 102(b) as being anticipated or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lee et al. (U.S. Patent No. 5,516,952).

Lee et al. discloses a process for breaking down rubber polymer materials by selective oxidative decoupling of carbon-carbon, carbon-sulfur and sulfur-sulfur bonds at supercritical or near supercritical conditions for water and wherein supercritical water or water near supercritical conditions is used as a solvent and reforming agent. The process is used to produce relatively high yields of lower molecular weight hydrocarbons and oxygenated hydrocarbons which are suitable for use as a fuel or which can be separated or further refined to produce various commodity chemicals, specialty chemicals or both. The preferred oxidants are disclosed between col. 5, line 65 and col. 6, line 6. The oxidant may be air, oxygen or oxygen containing compounds such as hydrogen peroxide.

It is further disclosed between col. 2, line 65 and col.3 line 19 that the reactants are preferably mixed such that the rubber polymer is rapidly brought to a sufficiently high temperature so that when the oxidant is brought into contact with

the rubber polymer and water, the water is at supercritical conditions. This procedure reduces the amount of time wherein the oxygen is in contact with the rubber polymer at conditions below the critical temperature and pressure of water is preferably kept to a minimum.

It is further disclosed at col. 4, line 61 that the process of the invention generally comprises the steps of forming a homogeneous or pseudohomogeneous mixture of rubber, water and oxidant, and causing the mixture to undergo selective oxidation at supercritical conditions. It is stated at col. 7, line 59-62 that carrying out the process at subcritical conditions is generally not preferred because larger residence times are required and/or lower product yields and lower product selectivity are achieved.

Finally, at col. 3 lines 42-49 it is disclosed that the final product preferably contains lower molecular weight hydrocarbons and oxygenated hydrocarbons containing 3-8 carbon atoms.

Amended claims 1, 15 and 23 of the subject application each recite that the reactor containing the rubber is purged of air. As such there is no oxidant in the reactor. This is in direct contrast to the process of Lee et al. where an oxidant is a central aspect of the disclosed process. Lee et al. do not disclose a process that does not involve an oxidant. Further, amended claims 1, 15 and 23 recite that the reaction product is primarily a solid phase and includes rubber hydrocarbon. Again this is in contrast to Lee et al. that discloses a product having between 3 and 8 carbon atoms.

Applicant therefore submits that Lee et al. does not disclose the subject matter of amended claims 1, 15 and 23. It is further submitted that the subject matter of these claims would not be obvious to a person of skill in the art having regard to Lee et al. Similar arguments are presented for claims 2, 3 and 6-14, and 16-22 that are dependent on claims 1 and 15, respectively. Applicant therefore respectfully requests these rejections be withdrawn.

The Examiner rejected original claims 1-23 under 35 U.S.C. 102(b) as being anticipated or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hunt et al. (U.S. Patent No. 5,891,926).

Hunt et al. discloses a devulcanization process for rubber that is carried out by heating the cured rubber in the presence of 2-butanol to a temperature of at least

about 150 °C under a pressure of at least about  $3.4 \times 10^6$  Pa. To increase the rate of the devulcanization process, the cured rubber will typically be cut, milled or ground to a relatively small particle size. Thus in the process disclosed by Hunt et al. the solvent is 2-butanol, which is an organic solvent. At no point does Hunt et al. disclose a solvent that contains water. Hunt et al. does not even contain the word water.

In contrast to the material disclosed by Hunt et al. amended claims 1, 15 and 23 each recite a solvent that includes water. Thus Hunt et al. has not disclosed the subject matter of claims 1, 15 and 23. It is also submitted that the subject matter of amended claims 1, 15 and 23 would not be obvious having regard to Hunt et al. As Hunt et al. does not even disclose the word water it is impossible for a person of skill in the art to read Hunt et al. and be lead to the subject matter of amended claims 1, 15 and 23. Similar arguments are presented for claims 2, 3 and 6-14, and 16-22 that are dependent on claims 1 and 15, respectively. Applicant therefore respectfully requests these rejections be withdrawn.

In view of the above amendments and remarks and having dealt with all the objections raised by the Examiner, reconsideration and allowance of the application is courteously requested.

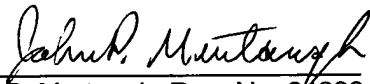
Applicant notes that the Examiner stated in the Office action that the references cited on Form 1449 must include a month and year of publication and that the Examiner accordingly lined through and did not consider 14 of the non-patent publications listed on applicant's Form 1449. Applicant notes that MPEP Section 609.04(a)(I) states as follows: "The date of publication supplied [in a Form 1449] must include at least the month and year of publication, except that the year of publication (without the month) will be accepted if the applicant points out in the information disclosure statement that the year of publication is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the particular month of publication is not in issue". Applicant accordingly herewith states for the record that the year of publication of the references not considered by the Examiner is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the particular month of publication is not in issue. Applicant accordingly encloses herewith pages 1-5 of its previously submitted Form

1449 and requests that the Examiner consider and initial the last 14 Other References listed therein (that is, all the Other References except the first one, which was previously considered and initialed). Applicant requests that an initialed copy of the Form 1449 be enclosed with the next communication.

If there are any further fees required by this communication, please charge such fees to our Deposit Account No. 16-0820, Order No. 36115.

Respectfully Submitted,

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